

teeth in *D. Swartzii* have two angles; whereas they are rounded in the present plant.

As there are three sides in one plant and four in the other, whilst the sides in both are equal, the filament of *D. quadrangulatum* is stouter; for the same reason, instead of one dark longitudinal line it has two lines running from side to side and crossing each other: the additional line of course depends on the additional angle. When these lines approach the opposite margins of the filament only one side is presented to the eye, and the filament is then of the same breadth as in *D. Swartzii*, but as it is regularly twisted its apparent breadth varies, being greatest where the two dark lines cross each other in the middle. The end view also has one more angle, and therefore the endochrome exhibits four instead of three rays.

I must confess that I am inclined to agree with Mr. Berkeley and Mr. Borrer, and to regard it as a variety of *Desmidiium Swartzii*; but as I have gathered it for two succeeding years quite unmixed with that species, and as Mr. Berkeley well observes (in a letter), that "whether considered as a species or variety it is a remarkable plant and well-deserving of notice," I have preferred to describe it as distinct.

PLATE XII. fig. 9. *Desmidiium quadrangulatum*.

[The following paragraphs, which should have been inserted in the description of *Xanthidium furcatum* at p. 466 of the previous volume, were omitted by accident.]

Near the centre of each segment there is a curious projection on each surface. In the front view, and especially before the escape of the endochrome, these projections are liable to be overlooked, and even in the empty fronds some attention is requisite for their discovery.

The best method of detecting them is to adjust the microscope for a view of the frond, and then gradually to raise the lens; as soon as the frond becomes slightly indistinct, the projections will be rendered visible. In this aspect they are circular with marginal teeth, somewhat resembling the peristome of a moss. In a lateral view the processes are more distinct, rather broader than high, and dentate at the end.

LVIII.—*Note on Mr. Bowerbank's Paper on the genus Dunstervillia (Bowerbank), with Remarks on the Ischadites Königii, the Tentaculites and the Conularia.* By THOMAS AUSTIN, Esq., F.G.S.

WHEN reading in the 'Annals' for the present month Mr. Bowerbank's very interesting observations on a new genus of calcareous

sponge (*Dunstervillea*), discovered on the coast of Southern Africa by Mr. G. Dunsterville, I was at once struck with the resemblance this minute sponge bears to the *Sphaeronites*, even before I had arrived at that part of Mr. Bowerbank's communication in which he states his conviction that the fossil known as *Sphaeronites tessellatus* owes its origin to an allied genus of Zoophytes. And I also came to the conclusion that this minute sponge would throw considerable light on those hitherto puzzling fossils, the *Ischadites* of the Silurian system.

On referring to the illustrations in the 'Annals,' and comparing them with Mr. Bowerbank's very clear description, there can be no room to doubt the correctness of his opinion that the *Sphaeronites tessellatus* is the calcareous skeleton of a spongiform body. And if it is admitted that *S. tessellatus* is the remains of an extinct species of sponge, there can be but little difficulty in proving the *Ischadites* to be of similar origin, and not belonging to the family of *Ascidia*, as Mr. König imagined. In alluding to this fossil in Murchison's 'Silurian System,' Mr. König says, "they seem to form a group of globular, coriaceous, and it may be added, pedicled bodies, for in one of them a cicatrix for the insertion of the pedicle distinctly appears." This cicatrix is probably the point where the zoophyte had been attached.

The manner in which the *Ischadites* are found associated together, and are compared in Murchison's 'Silurian System' to compressed figs, serves to show that the zoophytes were affixed in groups to extraneous bodies, and that they lived and died on the spots where their remains are now imbedded. The flattened form in which they sometimes occur may be accounted for by the fact that the internal supports (spicula) are either wholly wanting, or, if present, but little adapted to sustain the sponge in its original form after the destruction of its vitality, so that the calcareous framework which still held together would become collapsed and leave the remains in the shape we now find them.

The *Sphaeronites* have been heretofore frequently considered as allied to the *Crinoidea*, but Mr. Bowerbank has, I conceive, clearly removed the difficulty relative to this fossil, and which will henceforth take its proper position in all future scientific arrangements of organic remains.

I will now venture an opinion relative to two other fossils which have caused considerable diversity of ideas respecting their nature and origin, namely, the *Tentaculites* and *Conularia*.

On a careful examination of numerous specimens, I am of opinion that the *Tentaculite* is the shell of a Pteropodous mollusk allied to the recent *Creseis*, as the *Conularia* is that of an animal allied to the *Cleodora*.

Bristol, May 14, 1845.